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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,785	11/02/2001	Masahide Shima	08917-048002	4014
26161	7590	10/22/2003	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			NGUYEN, CAM N	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 10/22/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
10/052,785

Applicant(s)  
Shima et al.

Examiner  
Cam Nguyen

Art Unit  
1754



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 6/11/03 (election/amendment)
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 13-18 and 20-24 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-18, 20, 21, and 24 is/are rejected.
- 7) ☒ Claim(s) 22 and 23 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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### DETAILED ACTION

1. The indicated allowability of claims 13-18 & 20-24 is withdrawn in view of Boxhoorn et al. (US Pat. 4,728,634). Rejections based on the newly applied reference(s) follow.

#### *Claim Rejections - 35 USC § 102(b)*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 13-18, 20-21, & 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Boxhoorn et al., "hereinafter Boxhoorn", (US Pat. 4,728,634).

Boxhoorn discloses a catalyst for the production of ethylene oxide from ethylene and molecular oxygen which comprises silver and an alkali metal promoter supported on a carrier, which carrier is prepared by a process which comprises mixing an aluminum compound with water and an alkali metal salt and with silicon dioxide and calcining the resultant mixture at a temperature between 1200°C and 1700°C (see col. 6, claim 1). The aluminum compound is a compound which forms an alpha alumina upon calcination at a temperature between 1200°C and 1700°C (see col. 6, claim 3). The silver comprises about 1 to about 25 wt.% calculated based on

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the weight of the total catalyst and the alkali metal promoter comprises from about 20 to about 1000 parts by weight of alkali metal (measured as the metal) per million parts by weight of the total catalyst (see col. 6, claim 9). Boxhoorn further discloses that the atom ratio of the alkali metal/Al is between about 0.001 and about 0.1 and the Si/Al atom ratio is between about 0.1 to 0.5 (see col. 4, ln 27-30).

Regarding claim 13, applicants claiming “a catalyst including a carrier, wherein the aluminum compound content as reduced to aluminum is in the range of 0-3 mols/kg of carrier, the silicon compound content as reduced to silicon is in the range of 0.01-2 mols/kg of carrier, and the alkali metal content as reduced to alkali metal is in the range of 0.01-2 mols/kg of carrier”.

Boxhoorn teaches the claimed carrier containing the claimed metal concentrations. See the calculations below.

Calculations:

1 kg of alumina (or  $\text{Al}_2\text{O}_3$ ) = about 10 moles = 20 g atom of Al.

Applicants claim: 0.01-2 mols Si and 0.01-2 mols alkali metal per 20 g atom of Al. Then,

Si/Al atomic ratio = 0.0005-0.1

Alkali metal/Al atomic ratio = 0.0005-0.1

Boxhoorn discloses: Si/Al atom ratio is about 0.1 to 0.5 and alkali metal/Al is about 0.001 and about 0.1 (see Boxhoorn at col. 4, ln 27-30).

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For silicon, applicants' upper value (which is 0.1) is the same as Boxhoorn's lower value (which is 0.1).

For alkali metal, applicants' upper value (which is 0.1) is the same as Boxhoorn's upper value (which is 0.1).

For aluminum, it is noted the instant claim does not require aluminum due to "0" as a minimum concentration.

Regarding claim 14, the claimed silver amounts are met by the teaching of the reference since the disclosed metal amounts fall within the claimed amounts (see Boxhoorn at col. 6, claim 9).

Regarding claims 15 & 16, the claimed alkali metal amounts are met by the teaching of the reference since Boxhoorn discloses the use of an alkali metal as a promoter, including Rb and Cs, for silver in the amount of about 20 to about 1000 ppm (which is about 0.002 to about 0.1 wt.%) (see Boxhoorn at col. 6, claims 9 & 11). The disclosed alkali metal concentration falls within the claimed concentration.

Regarding claims 17-18, Boxhoorn discloses heat treating (or calcining) the silver impregnated carrier at a temperature of between 100°C and 400°C for a period of time (see Boxhoorn at col. 2, ln 66-68). The claimed temperature is met by the teaching of the reference since the disclosed upper temperature range of "400°C" is overlapping with the claimed lower temperature range.

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Regarding claims 20-21 & 24, it is considered the claims are met by the teaching of the reference in view of the same metal concentrations disclosed by the reference and in applicants claims.

***Allowable Subject Matter***

4. Claims 22 & 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As concern with claim 22, the prior art does not disclose or fairly suggest a catalyst requiring a carrier having the claimed aluminum, silicon, alkali metal concentrations in combination with the average particle diameter as recited.

As concern with claim 23, the prior art does not disclose or fairly suggest a catalyst requiring a carrier having the claimed aluminum, silicon, alkali metal concentrations in combination with the BET surface area as recited.

***Conclusion***

5. Claims 13-18 & 20-24 are pending. Claims 13-18, 20-21, & 24 are rejected. Claims 22 & 23 are objected. No claims are allowed.

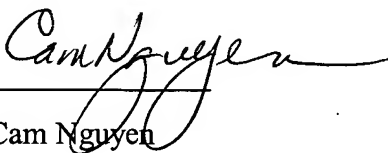
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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cam Nguyen, whose telephone number is (703) 305-3923. The examiner can normally be reached on M-F from 8:30 am. to 6:00 pm, with alternative Monday off.

The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 (before finals) and (703) 872-9311 (after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Nguyen/cnn *CNN*  
October 20, 2003

  
Cam Nguyen  
Primary Examiner  
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